

ART 34 AMDT

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531 Rec'd PC

09/857759

08 JUN 2001

1. An electrode structure comprising a first catalytic component and a second catalytic component, wherein:
- (a) said first catalytic component comprises one or more electrocatalyst(s) of formula Pt-Y, wherein Y is Mo, W or an oxide of Mo or W, and optionally a third metal component X which is alloyed with the platinum and which is one or metals selected from the group Ru, Rh, Ti, Cr, Mn, Fe, Co, Ni, Cu, Ga, Zr, Hf and Sn; and
- (b) said second catalytic component comprises one or more electrocatalyst(s) of formula Pt-M, where M is a metal alloyed with the platinum and is one or more metals selected from the group Ru, Rh, Ti, Cr, Mn, Fe, Co, Ni, Cu, Ga, Zr, Hf and Sn; and
- wherein the first and second catalytic components are in ionic contact with each other.
2. An electrode structure according to claim 1 wherein X is selected from Ru, Mn, Co, Ni, Rh and Ni.
3. An electrode structure according to claim 1 or claim 2, wherein M is selected from Ru or Rh.
4. An electrode structure according to claim 1, wherein the first catalytic component is selected from <sup>primary consists of</sup> Pt/Mo, Pt/Mo/Co, Pt/W/Co, Pt/Ru/WO<sub>3</sub> and Pt/Ti/W; and the second catalytic component is Pt/Ru.

AMENDED SHEET

5. An electrode comprising an electrode structure according to any preceding claim wherein the electrocatalyst materials are present on one side of a gas diffusion material.
6. A catalysed membrane comprising an electrode structure according to any one or more of claims 1 to 4 wherein the electrocatalyst materials are present on one side of the polymer electrolyte membrane material.
7. An MEA comprising an electrode structure according to any one or more of claims 1 to 4.
8. An electrode according to claim 5, a catalysed membrane according to claim 6 or an MEA according to claim 7 wherein the two catalyst materials are formulated into two separate layers.
9. An electrode according to claim 5, a catalysed membrane according to claim 6 or an MEA according to claim 7 wherein the two catalyst materials are formulated into one mixed layer.
10. A fuel cell an electrode structure, comprising a first catalytic component and a second catalytic component, characterised in that the first catalytic component comprises one or more electrocatalyst(s) of formula Pt-Y where Y is a bronze forming element, and optionally a third metal component X which is alloyed with the platinum, and the second catalytic component which comprises one or more electrocatalyst(s) of formula Pt-M, where M is a metal alloyed with the

platinum.

11. Use of an electrode structure according to any one or more of claims 1 to 8 in a fuel cell.

16. An electrode, such as an anode, such as a fuel cell anode; an electrochemical device, such as an MEA; a use; or a method, substantially as hereinbefore described with particular reference to the examples.